

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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RECEIVED

13 MAY 2004

GILL JENNINGS &amp; EVERY

PCT

WRITTEN OPINION  
(PCT Rule 66)Date of mailing  
(day/month/year)

11.05.2004

Applicant's or agent's file reference  
MJB07237.WO

REPLY DUE

within 3 month(s)  
from the above date of mailingInternational application No.  
PCT/GB 03/01943International filing date (day/month/year)  
13.05.2003Priority date (day/month/year)  
17.06.2002International Patent Classification (IPC) or both national classification and IPC  
G01S5/02Applicant  
CAMBRIDGE POSITIONING SYSTEMS LIMITED et al.1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I  Basis of the opinion
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

**When?** See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

**How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also:** For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 17.10.2004

Name and mailing address of the international preliminary examining authority:



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**I. Basis of the opinion**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

**Description, Pages**

1-21 as originally filed

**Claims, Numbers**

1-33 as originally filed

**Drawings, Sheets**

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5.  This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

the entire international application,

claims Nos. 1-33

because:

the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (specify):

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

no international search report has been established for the said claims Nos. 1-33

2. A written opinion cannot be drawn due to the failure of the nucleotide and/or amino acid sequence listing to comply with the Standard provided for in Annex C of the Administrative Instructions:

the written form has not been furnished or does not comply with the Standard.

the computer readable form has not been furnished or does not comply with the Standard.

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

**1. Lack of Clarity (Art. 6 PCT)**

1.1 Due to the vague and imprecise wording of the independent claims, a lack of clarity and conciseness within the meaning of Article 6 PCT arises to such an extent as to have rendered a meaningful search of the claims impossible. Terms such as "blurred estimate" "Section of a representation" "Blurred terminal section" etc. do not form part of the terminology used in the relevant field of invention. Moreover, definition of the terms "blurred estimate" "Section of a representation" "Blurred terminal section" cannot be divined with any certainty from the description. Thus, these terms are vague and unclear, leaving the reader in doubt as to the meaning of the technical features to which they refer. Comparison between the description on pages 16-20 and the claims leads to the conclusion that the broad scope of what is claimed is not commensurate with the disclosure.

1.2 Furthermore, the inconcise formulation of the present independent claims imposes an undue burden on others seeking to establish the extent of protection.

1.3 Thus, given the present objections to lack of clarity of the claims, and subsequent to the conditions of Art. 34(4)(a) PCT, it is not possible to provide an opinion as to novelty, inventive step and industrial applicability (Art. 33(1) PCT).

**2. Comments**

The applicant is requested to file amended claims to overcome the objection to lack of clarity above. When drafting amendments, the applicant is requested to take the following into account:

-1- The search has been carried out for those parts of the application which appear to be clear, namely those outlined on pages 16-20. Thus, support for amended claims should be clearly indicated with passages from pages 16-20.

-2- In order to expedite the examination process, the examiner presents the following argumentation indicating the lack of inventive subject-matter of claim 1 (interpreted in the light of pages 16-20 of the description):

D1: WO 00 55992 A (ERICSSON INC) 21 September 2000  
D2: DUFFETT-SMITH, PJ; MCNAUGHTAN, M D: 'Precise UE Positioning in UMTS Using Cummulative Virtual Blanking' 3G MOBILE COMMUICATION TECHNOLOGIES, 8 - 10 May 2002, pages 355-359, XP002223369  
D3: SUZUKI H ET AL: 'AN ORTHOGONAL SUCCESSIVE INTERFERENCE CANCELLER FOR THE DOWNLINK COMMUNICATIONS IN A DS-CDMA MOBILE SYSTEM' GLOBECOM'00. 2000 IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE. SAN FRANCISCO, CA, NOV. 27 - DEC. 1, 2000, IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE, NEW YORK, NY: IEEE, US, vol. 2 OF 4, 27 November 2000 (2000-11-27), pages 847-851, XP001017205 ISBN: 0-7803-6452-X  
D4: US-A-6 094 168 (DUFFETT-SMITH PETER JAMES ET AL) 25 July 2000

Document D1 renders the subject-matter of claim 1 (in so far as it is interpreted as meaning that disclosed on pages 16-20 of the description) as lacking in inventive subject-matter.

Document D1 discloses the following features of claim 1:

✓ -i- A method of finding the time offset between signals transmitted by at least one of a plurality of transmitters of a communications network (see D1, **Figure 2**) and received by a receiver attached to a terminal (**A well-known process in CDMA communications systems (see D1)**. **This procedure is carried out for at a base station for each received signal**),  
the method comprising the steps of  
✓ -ii- (a) creating at the terminal a section of a representation of the signals from the transmitters received by the receiver (see D1, **output of #430 of Figure 4**);  
✓ -iii- (b) creating a first section of a representation of the signal transmitted by a first of said transmitters, and creating a second section of a

*distinguishable if based on location of sampling  
depends on transm*

representation of the signal transmitted by a second of said transmitters, each of which sections overlaps in time with the section created at the terminal (see D1, page 12, lines 12-14 - signal used in correlated 405);

(these following features -iv- -vii-, in so far as it can be understood with recourse to the description, are anticipated exactly by Figure 4 of D1).

*not done in D1  
(measurement)*

*D1 mathematical  
(we have  
blurring after  
#405 in D1 fig 4)*

- iv- (c) calculating a blurred estimate of the signal received at the terminal from the first transmitter using a first function dependent on the first section and the section created at the terminal in step (a) (see Figure 4, #430);
- v- (d) creating a blurred terminal section using a second function dependent on the first section and the section created at the terminal in step (a) (see Figure 4, #435);
- vi- (e) subtracting the blurred estimate from the blurred terminal section to produce a blurred residual representation (see Figure 4, output of summation circuit); and
- vii- (f) estimating the time offset between the blurred residual representation and the second section (see Figure 4, #415).

*D1 does not have this  
subtraction occurs but  
not of these aspects.  
as above*

The further application of subtractive interference cancellation to the field of position determination is further rendered obvious from the combination of D1 and D2 (see D2, page 357, "Operation"). D2 discloses position determination using subtractive interference cancellation. The man skilled in the art would consult a document, such as D1, for the concrete implementation of such a SIC module. Moreover, position determination is a well known application in the field of CDMA communications. The man skilled in the art would not hesitate to implement the concrete arrangement of a subtractive interference cancellation circuit such as described in D1 in the positioning method of D2.

It appears, in the light of the prior art cited in the International Search Report, that the disclosure of pages 16-20 does not contain any subject-matter which could form the basis of allowable novel and inventive claims. The applicant is requested to file new claims and to demonstrate clearly how these new

**claims provide a novel and inventive contribution over the prior art. This should be done in the form of identifying the features which form a contribution above the prior art, to state the problem addressed and to provide convincing argumentation as to why this contribution is inventive.**

- 3- As mentioned above, the terms "blurred terminal section" etc. are regarded as unclear. However, the definitions of these features provided in the description on pages 16-20 appear clear. Thus, subsequent to C-III 4.2, of the Guidelines for Examination in the European Patent Office, the applicant is kindly requested to amend the claims by insertion of these definitions.

Furthermore, the features such as -v- (step (d)) above are unclear as it is not possible to discover from the formulation how a "blurred terminal section" can be created using a "second function dependent on the first section and the section created at the terminal in step (a)".

It would appear appropriate, in order to overcome the objection to lack of clarity, to formulate amended claims which employ the formulae of pages 17-19.

- 4- The applicant is reminded, that, in order to comply with the conciseness requirements of Art. 6 PCT it is appropriate to file an amended set of claims defining the relevant subject-matter in terms of a **single independent claim in each category** followed by dependent claims covering features which are merely optional (Rule 6.4 PCT).
- 5- In accordance with Rule 6.3(b) PCT, an amended independent claim should be drafted in the "two-part form" i.e. those features known in combination from the prior art being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT)
- 6- To bring the application into compliance with Rule 5.1(a)(ii) PCT, D1-D3 should be acknowledged in the description.
- 7- According to Rule 6.2(a) PCT reference signs should be inserted in the

claims to facilitate quicker understanding.

- 8- The applicant is requested to file amendments by way of replacement pages in the manner stipulated by Rule 66.8(a) PCT. In particular, fair copies of the amendments should be filed preferably in triplicate. Moreover, the applicant's attention is drawn to the fact that, as a consequence of Rule 66.8(a) PCT the examiner is not permitted to carry out any amendments under the PCT procedure, however minor these may be.
- 9- In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT). If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.